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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,685	12/05/2001	Janne Haavisto	442-010740-US(PAR)	7613

2512 7590 12/27/2005

PERMAN & GREEN
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FAIRFIELD, CT 06824

EXAMINER	
LAM, HUNG H	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/004,685	HAAVISTO, JANNE	
	Examiner	Art Unit	
	Hung H. Lam	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 10/06/05, have been entered and made of record. Claims 1-20 are pending.

In view of the Applicant's amendment to the title, Figs. 1, 2a and 2b and claim 19, the objections are hereby withdrawn.

Response to Arguments

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-5, 7-13 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haba (US-6,330,027) in view of Chu (US-5,702,059).

With regarding to **claim 1**, Haba discloses a method for the transmission of data between a camera module and an electronic device (Fig.1; camera module 1 and electronic device 2), said method comprising the steps of generating image data in the image sensor of the camera

module (Fig. 1; CCD 103 and S/H AGC Circuit 104; Col. 4, Ln. 28-52; Col. 6, Ln. 11-12; image data/ gain value is generated from S/H AGC 104), said image sensor comprising at least one row of pixels, and said image data comprising the data generated by said row of pixels (the image pickup 103 inherently includes at least one row of pixels and generates image data from the row of pixel; col. 4, Ln. 27-44), and collecting statistical data (Col. 6, Ln. 9-20; statistical data is interpreted as V sync data which is collected by processing unit 2 for each of the video sync signal line; In addition, the V sync data is used when the gain value is supplied from camera 1 to the processing unit 2), wherein the method further comprises: transmitting said image data and said statistical data from the camera module to the electronic device essentially at the same time (Col. 6, Ln. 15-17; image data/ gain value and statistical data/ V sync are inherently transmitted at the same time frame).

However, Haba fails to explicitly disclose the method of collecting statistical data from the image data.

In the same field of endeavor, Chu teaches a board camera (Fig. 2; 40) coupling to an image control circuit (14) wherein the gain adjusted video signal collecting from the board camera is used to control the gain setting and the exposure period of the board camera (Col. 4, Ln. 19-24; Col. 8, Ln. 7-45). Chu further teaches that a portion of the gain adjusted video signal corresponding to a captured frame represents the pixel intensity/brightness associated with the frame (Col. 4, Ln. 64- Col. 5, Ln. 1; Col. 9, Ln. 21-64). In addition, Chu teaches the signal processing circuitry (26) extracting an intensity history value, a dynamic range maximum value, dynamic range minimum value from the gray scale value signal (74) associated with a captured frame of the video image in order to generate control signals for the gain circuitry (52) and

exposure period circuitry (48) of the board camera 40 (Col. 9, Ln. 43-67). Chu teaches that the rapid execution by the image control circuitry results in a very short latency period (Col. 8, Ln. 65-Col. 9, Ln. 8; latency period is defined as the time elapsed between powering up system 10 and achieving a suitable video image for decoding). In light of the teaching from Chu, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Haba to collect the gain adjusted video signal from the board camera (40) for controlling the gain setting and exposure. The modifications thus provide an improved camera system with a shorter latency period of 50 ms or less (Chu: Col. 9, Ln. 1-8).

With regarding to **claim 2**, Haba in view of Chu discloses a method wherein said image data and said statistical data are transmitted interlaced with each other on at least one common bus (Fig 1; image data/ gain value and statistical data/ V sync are inherently interlaced and transmitted at the same time because the transmission is performed on one single bidirectional serial bus 3 and both data are needed for AF and AE control signals of the next immediate image).

With regarding to **claim 3**, Haba in view of Chu discloses a method wherein said image data and said statistical data are transmitted in the same data frame (Haba: Col. 6, Ln. 15-17; image data/ gain value and statistical data/ V sync are inherently transmitted in the same data frame because the transmission is performed on one single bidirectional serial bus 3 and both data are needed for AF and AE control signals of the next immediate image), said data frame comprising at least one image data unit at least one statistical data unit (Haba: Fig. 1; Col. 4, Ln. 45-52; Col. 6, Ln. 11-12; image data/ gain value is generated from S/H AGC 104; Col. 6,

Ln. 15-17; V sync is interpreted as statistical data). However, Haba and Chu fails to disclose the data frame comprising at least one at least one synchronization code to separate said image data unit from said statistical data unit.

Official Notice is taken that it is well known and expected in the art to add a specific synchronization pattern, or sequence to the leading end or both the leading and trailing ends of each block of data or frame in order to transmit numerous data links between integrated circuit. Therefore, it would have been obvious to one of ordinary skill in the art to modify the device of Haba and Chu to include at least one synchronization code in order to separate each block of image data and statistical data unit and thereby improving the way of identifying individual block of data in according to the recognized synchronization codes.

With regarding to **claim 4**, Haba in view of Chu discloses a method wherein said image data unit comprises image data generated by at least one said row of pixels (Haba: Fig. 1; S/H AGC Circuit 104; Col. 4, Ln. 45-52; S/H AGC/ image data unit inherently includes the image data which generated by at least one row of pixels) and that said statistical data unit (Haba: V sync) comprises statistical data for said image data generated by at least one row of pixels (Haba: Fig 1; statistical data/ V sync is inherently generated by at least one row of pixels because the statistical data is needed for the processing circuit 202 to issue AF and AE control signals to camera unit 1).

With regarding to **claim 5**, Haba in view of Chu discloses a method wherein said row of pixels is a vertical or horizontal row in said image sensor (Haba: the row of pixels is inherently a common vertical or horizontal row of the image pickup 103).

With regarding to **claims 7 and 20,** Haba in view of Chu fails to explicitly disclose wherein the camera module and the electronic device are integrated into one single device and that said bus is a device-internal bus.

Official Notice is taken that it is well known and expected in the art to integrate the camera module, the electronic device and the bus into a single multimedia camera chip in order to reduce the space, power constraints and overall cost. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Haba and Chu by having the camera module, the electronic device, and the serial bus integrated into one single device in order to provide an improve image pickup unit and thereby reducing space, power, and overall cost.

With regarding to **claim 8,** Haba in view of Chu discloses a method wherein said transmitted statistical data (Haba: V sync) is used as the generation basis for at least one parameter related to image processing (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-11).

With regarding to **claim 9,** Haba in view of Chu discloses a method wherein said at least one image-processing parameter created is used for the processing of the image to be generated (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-11; Col. 6, Ln. 45-47; image-processing parameter is interpreted as the auto focus {AF}, auto exposure {AE} control data, auto white balance {AWB} that are read from signal processing circuit 202).

With regarding to **claim 10,** Haba in view of Chu discloses a method wherein said at least one image-processing parameter is used for adjusting the image sensor of the camera module to generate image data for the next image (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-11; AF and AE control-data from signal processing circuit 202 are supplied to camera module 1 in order for the system control unit 106 to perform auto focus and auto exposure to generate next image).

With regarding to **claim 11**, Haba discloses a device comprising a camera module and an electronic device (Fig.1; camera module 1 and electronic device 2), comprising means for generating image data in the image sensor of the camera module (Fig. 1, image pickup element 103 and AGC 104), said image sensor comprising at least one row of pixels and said image data comprising the data generated by said rows of pixels (the image pickup 103 inherently includes at least one row of pixels and generates image data from the row of pixel; Col. 4, Ln. 28-52; Col. 6, Ln. 11-12), means for collecting statistical data (Col. 6, Ln. 9-20; statistical data is interpreted as V sync which is collected by processing unit 2 for each of the video sync signal line; In addition, the V sync data is used when the gain value is supplied from camera 1 to the processing unit 2), wherein the device further comprises means for transmitting image data and statistical data from the camera module to the electronic device essentially at the same time (Col. 6, Ln. 15-17; image data/ gain value and statistical data/ V sync are inherently transmitted at the same time frame performed on one single bidirectional serial bus 3 and both data are needed for AF and AE control signals of the next immediate image).

However, Haba fails to explicitly disclose a means for collecting statistical data on said image data.

In the same field of endeavor, Chu teaches a board camera (Fig. 2; 40) coupling to an image control circuit (14) wherein the gain adjusted video signal collecting from the board camera is used to control the gain setting and the exposure period of the board camera (Col. 4, Ln. 19-24; Col. 8, Ln. 7-45). Chu further teaches that a portion of the gain adjusted video signal corresponding to a captured frame represents the pixel intensity/brightness associated with the frame (Col. 4, Ln. 64- Col. 5, Ln. 1; Col. 9, Ln. 21-64). In addition, Chu teaches the signal processing circuitry (26) extracting an intensity history value, a dynamic range maximum value, dynamic range minimum value from the gray scale value signal (74) associated with a captured frame of the video image in order to generate control signals for the gain circuitry (52) and exposure period circuitry (48) of the board camera 40 (Col. 9, Ln. 43-67). Chu teaches that the rapid execution by the image control circuitry results in a very short latency period (Col. 8, Ln. 65-Col. 9, Ln. 8; latency period is defined as the time elapsed between powering up system 10 and achieving a suitable video image for decoding). In light of the teaching from Chu, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Haba to collect the gain adjusted video signal from the board camera (40) for controlling the gain setting and exposure. The modifications thus provide an improved camera system with a shorter latency period of 50 ms or less (Chu: Col. 9, Ln. 1-8).

With regarding to **claim 12**, Haba in view of Chu discloses the same limitations as recited in claim 3. Therefore, claim 12 is analyzed and rejected as previously discussed under claim 3.

With regarding to **claim 13**, Haba in view of Chu discloses the same limitations as recited in claim 4. Therefore, claim 13 is analyzed and rejected as previously discussed under claim 4.

With regarding to **claim 15,** Haba in view of Chu discloses the same subject matter as claimed in claim 11. Further more, Haba and Chu discloses a device wherein the device also comprises means for generating an image-processing parameter from the transmitted statistical data (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-17; Col. 6, Ln. 45-47; image-processing parameter is interpreted as the auto focus {AF}, auto exposure {AE} control data or auto white balance {AWB} that are generated when the processing circuit 202 collects each of the V sync signal line and gain value from camera module 1).

With regarding to **claim 16,** Haba in view of Chu discloses a device, wherein in addition, the device comprises means for image data processing to process the transmitted image data based on said image-processing parameter (Haba: Col. 6, Ln. 43-47; the control module (106) of camera 1 controls the AF/AE control module corresponding to the image-processing parameter supplied by processing circuit 202. It is inherent that the control module (209) of unit 2 also controls the white balance corresponding to the image-processing parameter).

With regarding to **claim 17,** Haba in view of Chu discloses a device wherein said means for image data processing have been implemented for processing the image to be generated (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-17; AF and AE control-data from signal processing circuit 202 are supplied to the camera control module 1 in order to perform auto focus or auto exposure for next image).

With regarding to **claim 18,** Haba in view of Chu discloses a device wherein said means for image data processing have additionally been implemented to control the image sensor in

acquiring the next image (Haba: Col. 4, Ln. 16-21; Col. 6, Ln. 9-17; AF and AE control-data from signal processing circuit 202 are supplied to camera control module 1 in order to perform auto focus or auto exposure for next image).

With regarding to **claim 19**, Haba in view of Chu discloses a device wherein said device comprising said camera module and said electronic device is a mobile communications terminal (Haba: Fig. 1; the electronic device 2 is capable of communicate with camera module 1 or host terminal unit 4).

5. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haba in view of Chu and further in view of Shimizu (US-6,515,271).

With regarding to **claim 6,** Haba in view of Chu fails to explicitly disclose wherein said data frame is transmitted from the camera module to the electronic device in the form of a serial synchronized differential signal. However, the limitations are well known in the art as taught by Shimizu.

In the same field of endeavor, Shimizu teaches a CMOS image sensor unit using low voltage differential signaling (LVDS) circuit as a mean for transmitting image data between transmitting side (CMOS image sensor unit) and the receiving side (CPU and Memory) (Fig. 4-5; Col. 7, Ln. 65-67 – Col. 8, Ln. 1-35). In light of the teaching from Shimizu, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Haba and Chu by having a low voltage differential signal circuit to transmits and receives data in order to transmit the data frame from the camera module to the electronic device

in the form of a serial synchronized differential signal. The modifications thus provide serial data transmission with low power consumption, less noise interference, less image deterioration and simplify the construction (Shimizu ; Col. 2, Ln. 62-67).

With regarding to **claim 14,** Haba in view of Chu fails to explicitly disclose wherein said data transmission means are additionally implemented for transmitting said data frame from the camera module to the electronic device in the form of a serial synchronized differential signal. However, the limitations are well known in the art as taught by Shimizu.

In the same field of endeavor, Shimizu teaches a CMOS image sensor unit using low voltage differential signaling (LVDS) circuit as a mean for transmitting image data between transmitting side (CMOS image sensor unit) and the receiving side (CPU and Memory) (Fig. 4-5; Col. 7, Ln. 65-67 – Col. 8, Ln. 1-35). In light of the teaching from Shimizu, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Haba and Chu by having a low voltage differential signal circuit to transmit and receives data in order to transmit the data frame from the camera module to the electronic device in the form of a serial synchronized differential signal. The modifications thus provide serial data transmission with low power consumption, less noise interference, less image deterioration and simplify the construction (Shimizu ; Col. 2, Ln. 62-67).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL

12/19/05

DAVID OMETZ
SUPERVISORY PATENT EXAMINER